

.22LR reloading guide

By Shit_On_Wheels

Oh boy, here we go.

Somewhere deep beyond the 5-th circle of hell there is another circle that has not been described in Dante's Inferno. If you'd go down there, you'd be greeted by a strange sight - dozens of people sitting around, swearing, screaming. Their hands shake, their fingers are bleeding and their eyes are red from insomnia. These are residents of European and Asian countries who, for their crimes, are forced to reload .22lr cartridges without dedicated equipment. Welcome to the 5.7-th circle.

While the United States of America has been blessed with an actual constitution, the rest of the world can only enjoy mere parodies of it. We cannot have cool stuff like this:



So we have to make-do. In our kitchens and dank garages.

What to expect

.22lr cartridges are extremely anemic compared to most reloadable centerfire cartridges. They're also less reliable, prone to misfeeding and have no separate primer that could be replaced. With all that in mind, we should expect 80% or less of our homemade cartridges to properly feed, shoot, extract and eject in a semi-automatic firearm.

Another major drawback of these cartridges would be that they cannot be seated into regular .22lr chambers and cannot be reused - this is because we will not be reshaping their casings.

Components and tooling

- **Spent .22lr casings.** Look for those in outdoor ranges. Steel casings are fine to use too, one can pick loads of them quickly with a magnet attached to a string.
- (Optional) **5.5mm air rifle pellets.** These should be available anywhere, but if not, similar size lead bbs or fishing sinkers can be used too.
- **Nail Gun blanks.** These should be available too, best place to look would be flea markets where used construction equipment is sold.
 - OR homemade finely ground **black powder.** It's really easy to make and there are tutorials all over the web in all existing languages.
- **Red caps for toy revolvers.** If you cannot find them locally, order online, maybe even from a neighboring country. Make sure to add a toy revolver to the order just in case.
- (Optional) **Needle file.** It will be used to crimp the casings.
- **Rubbing alcohol, acetone or 80% moonshine.** Any liquid works as long as it evaporates faster than water.
- Thin and stiff wire, small screwdriver, bent needle, **any little, pointy and bendable thing.** We need something to scrape around the rim from the inside.
- **3D printer.** Everyone should have one.
- **TPU filament.** Cheapest brands will do.
- **Superglue or clear epoxy glue.**
- **5-5.4mm drill bit or reamer.** They can be used to scrape out gunk from the inner walls of the cartridge.
- **Pocket scales.** These are mostly used by drug dealers. At least 0.01g accuracy is a must.
- **Pliers.**
- **5.8-6.0mm reamer.** You'll have to ream the chamber to the depth of 24.4mm and width of 5.9-6mm.

Component preparation

Collect some casings and print out the corresponding number of TPU bullets. If your printer does not have a direct drive setup (Ender 3 and its derivatives have a bowden tube setup), print an adapter first or print TPU very slowly (low retraction speed and distance, 20mm/s or lower speed). Printing these bullets is not really necessary if you're going to use your cartridges in a single shot firearm or a revolver.

Goggles and gloves are recommended for all further steps. Really, wear them, better safe than sorry.

Uncrimp nail gun blanks and pour the powder into a glass container. Keep this container away from the area where you do your uncrimping business. It's possible to also extract priming compound from these blanks, but this is very unsafe and thus not recommended.

Each .22lr cartridge needs 0.10g (grams, not grains!) of smokeless powder, so if you're reloading 20 cartridges, you'll need 2g of it.

Alternatively, you can mix some black powder, but it won't be suitable for use in self-loading firearms and you'd need to add 0.4g of it into each cartridge.

Reloading process

If you have all the tools and materials ready, let's jump to the easiest and most boring part - cleaning. Scrape inside of each casing with a drill/reamer to get rid of gunk and unburned powder. Take your sharpened and bent thingy and scrape all around the rim to remove old priming compound residue. You might want to rinse out the remaining gunk and dust with tap water, but that is not strictly necessary.

Now if your casings are dry, start lightly squeezing red caps with pliers to get that priming compound out. Collect the powder from three caps, pour it into a casing, repeat until all casings receive this dose.

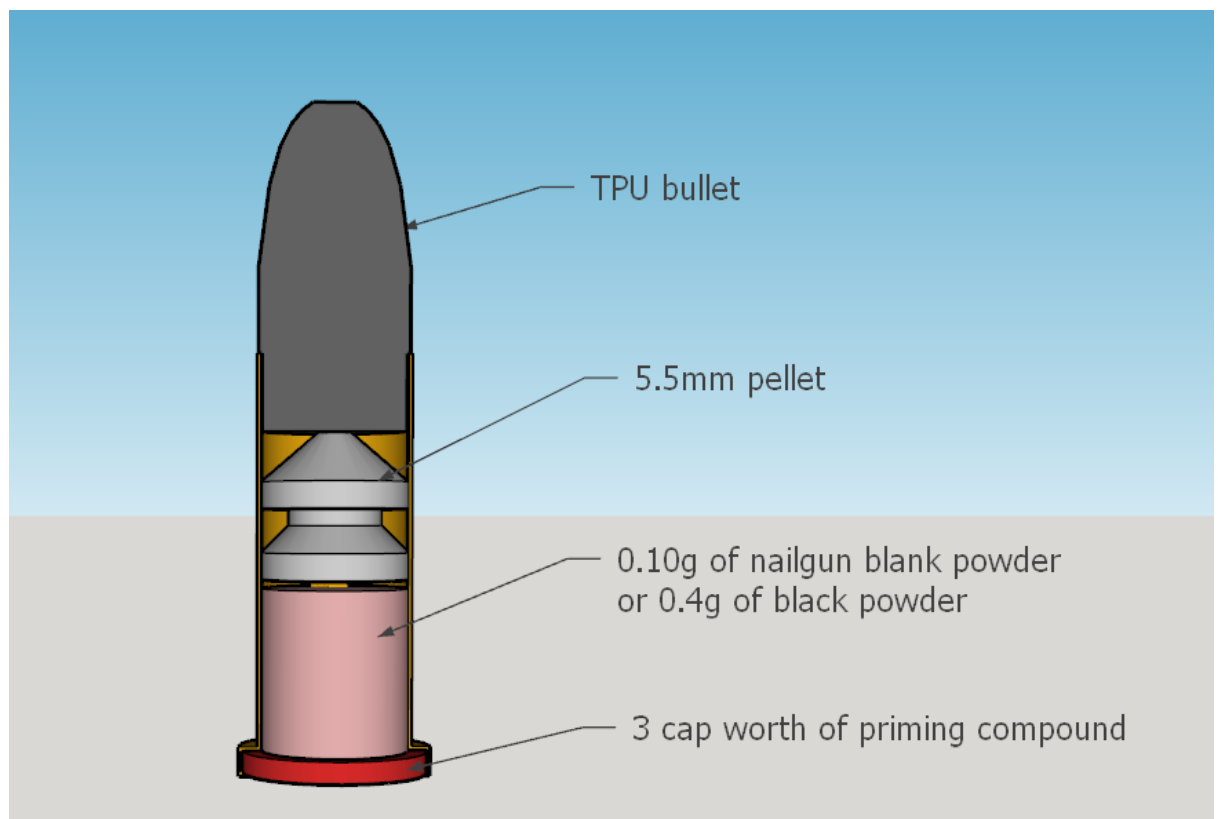
Put a drop of solvent of your choice into each casing. It should soak the priming compound. Take a random stick, wooden match or a toothpick and distribute the resulting paste along the rim.

Now wait till all solvent evaporates. Don't ever fill a damp cartridge with powder.

Add the appropriate amount of propellant of your choice into each cartridge. Black powder has to be compressed - use a wooden or plastic stick and do it far away from other cartridges.

You'll have to squeeze an airgun pellet into each cartridge. It's most likely that they won't fit as-is, so you may have to press and roll them on a file to bring the diameter down. Place each cartridge on a wooden surface and push in the pellet with a stick. Again, do it one at a time and away from other cartridges. There should be about 3mm distance left from the tip of the pellet to the top of the casing. If distance is insufficient, trim the tips of following pellets. *This step can be done differently - you can opt to use crumpled paper instead of lead pellets. Building a cartridge this way would result in less lethal rubber ammunition.*

Add some glue to the bottom of TPU bullets and seat them into prepared cartridges. Don't go overboard with it, glue should not soak into gunpowder. Tilt cartridges upside down and let the glue dry. Resulting cartridges should look like this:



Tips and tricks

- TPU bullets can be used as projectiles in converted .22 blank revolvers.
- It's best to spare expensive and good quality firearms and convert homemade gun stuff instead. Good candidates for this are: MAC22, EZ22, Y22, Maverick V2, Washbear, G22 Grizzly.
- Use factory loaded cartridges for EDC. Reloads might be fine for plinking, but one bad cartridge can cost you your life.
- Avoid unusual propellants like match head powder, TATP, sugar based mixtures, flash powder.
- Black powder will gunk up the barrel, it should be cleaned every 10 shots.
- Black powder loads can be adjusted, sometimes even doubled, due to variations in homemade powder quality.
- Cycling problems are to be expected in self-loading firearms, but revolvers, bolt actions and single shots should be just fine.
- Absolutely no suppressors. Since two projectiles are being fired at once, baffle strikes are guaranteed.
- TPU bullets are not needed for single shot guns and revolvers. This allows for bigger powder loads and ballistics are better with just one projectile.
- If there's not enough space for the powder, you can horizontally cut the lead pellet in two thin sections. This absolutely ruins the accuracy.
- Butane torch can be used to smooth out rough and stringy TPU bullets.